

DISCUSSION OF THE AMENDMENT

Claim 1 has been amended to recite that the heat shrinkable film is --crystalline--, as supported in the specification at, for example, page 40, line 3ff and line 16ff; that the styrene type polymer having a syndiotactic structure of component (B) is --crystalline--, as supported in the specification at, for example, page 20, line 16ff and line 25ff; and that the styrene type polymer of component (C) is --non-crystalline--, as supported in the specification at, for example, page 23, lines 7-9, since "general purpose polystyrene," i.e., atactic polystyrene, is well-known to be non-crystalline.

New Claims 30 and 31 have been added, as supported in the specification at page 17, lines 9-13.

No new matter is believed to have been added by the above amendment. Claims 1-23, and 28-31 are now active in the application. Claims 24-27 stand withdrawn from consideration, but are subject to rejoinder.

REMARKS

Due to the length of the specification herein, Applicants will cite to the paragraph or page number, as appropriate, of the published patent application (PG Pub) of the present application, i.e., US 2006/0233984, when discussing the application description, rather than to page and line of the specification as filed.

The rejection of Claim 1 under 35 U.S.C. § 103(a) as unpatentable over US 6,841,261 (Matsui et al) in view of “the admitted prior art,” is respectfully traversed.

Above-amended Claim 1 claims a heat shrinkable crystalline film comprising a resin composition comprising the following components (A), (B) and (C), obtained by orientation at least in monoaxial direction, and having a heat shrinkage ratio at 80°C for 10 seconds of at least 20%:

(A) 50 to 95 mass% of a block copolymer comprising an aromatic vinyl compound and a conjugated diene in a proportion of the aromatic vinyl compound of from 50 to 90 mass%, and having a micro phase separation structure comprising a soft phase and a hard phase,

(B) 5 to 50 mass% of a crystalline styrene type polymer having a syndiotactic structure, and

(C) 0 to 45 mass% of a non-crystalline styrene type polymer different from the components (A) and (B).

Matsui et al discloses, *inter alia*, a composition comprising a block copolymer (A) which comprises a vinyl aromatic hydrocarbon and a conjugated diene, and having particular dynamic viscoelasticity and loss tangent value properties (column 3, line 16ff) and a vinyl aromatic hydrocarbon polymer that is at least one member selected from vinyl aromatic hydrocarbon polymers (B1) to (B3), wherein (B1) is a vinyl aromatic hydrocarbon polymer, (B2) is a block copolymer of a vinyl aromatic hydrocarbon and a conjugated diene (excluding

the block copolymer (A)), and (B3) is a rubber-modified transparent resin which is a composition of a copolymer (a) comprising a vinyl aromatic hydrocarbon and a (meth)acrylate having a particular refractive index, and a rubber-like elastic body (b) having a particular refractive index, wherein the copolymer (a) forms a continuous phase and the rubber-like elastic body (b) forms a disperse phase, and the weight ratio of (a)/(b) is within a particular range (column 5, line 23ff). The compositions are disclosed as useful for the production of a heat shrinkable film (column 1, lines 6-23).

The Board holds that “one of ordinary skill in the art would have been led to employ a conventional polystyrene polymer having a well known syndiotactic structure as the styrene polymer of [Matsui et al]’s resin composition containing a styrene/diene block copolymer and a styrene polymer, with a reasonable expectation of successfully forming a heat shrinkable film” (Decision at 13-14). In so holding, the Board relies on so-called “the admitted prior art.”

The admitted prior art, as reflected in various Additional Relevant Findings of Fact (FF) 19 and 20 (Decision at 10-11), is of prior art that Applicants have described in the specification, i.e., that styrene type polymers having a syndiotactic structure (syndiotactic polystyrenes or SPS) have been used in multilayer films generally and in heat shrinkable films of the prior art. However, the Board ignores the deficiencies of these films which Applicants have also described in the specification. Thus, the Board ignores the description of the prior art described at paragraph [0005] of the specification that their films “have insufficient balance of high shrinkability at heat shrinkage, resistance to spontaneous shrinkage,, transparency, flexibility, etc., as heat shrinkable films,” and similar descriptions of deficiencies at paragraphs [0006]-[0008] of the specification.

Thus, for FF 19, shrinkable films of the cited prior art have insufficient balance of shrinkability, spontaneous shrinkage, flexibility, etc., as described in the specification at

paragraph [0005]. Regarding FF 20, the specification at paragraph [0006] describes that a multilayered oriented laminated film of the cited prior art has insufficient balance of physical properties.

Thus, since 35 U.S.C. § 103 requires consideration of the subject matter **as a whole**, one of ordinary skill in the art would not simply add an SPS to any other polymer in the production of a heat shrinkable film, simply because SPS has been used in prior art heat shrinkable films, but would have to consider the disadvantages of prior art heat shrinkable films containing SPS.

Moreover, as supported in the specification, the addition of SPS, which is an opaque crystalline polymer, to a normal block polymer, does not, by itself, result in transparency of a heat shrinkable film derived from this combination of components. For example, as described in the specification at paragraph [0114], “if it [the cast rolling temperature] exceeds 100°C, no sufficient quenching will be carried out, whereby ... the transparency tends to decrease.” Further, as described at paragraph [0125], it is possible to obtain both transparency and heat resistance by controlling the cold crystallization temperature.

In addition, FF 18 and FF 21 are incorrect, as supported by the record.

Thus, regarding FF 18, Applicants **did and still do**, dispute the Examiner’s finding that the styrene type polymer taught by Matsui et al generically includes a polystyrene polymer having a syndiotactic structure. Indeed, at page 6 of the Amended Appeal Brief, Applicants argued:

Nor does Matsui et al disclose or suggest the presence of a styrene type polymer having a syndiotactic structure. While the Examiner cites column 14, line 32 to column 15, line 16, and column 9, lines 28-63, of Matsui et al, neither these passages, nor any other disclosure in Matsui et al, even mentions styrene type polymers that are syndiotactic.

The styrene type polymer disclosed by Matsui et al suggests to persons skilled in the art only atactic polystyrene (APS), which is clearly different from the SPS of the present invention.

Applicants previously submitted with the Appeal Brief filed January 10, 2008, a copy of "Polystyrene" at <http://pslc.ws/macrog/kidsmac/polysty.htm>, which shows the difference between SPS, in which the direction of the pendant phenyl moiety alternates in a regular manner, and garden-variety polystyrene APS, in which the pendant phenyl moieties are arranged randomly. In addition, it is notoriously well-known that SPS is crystalline while APS is non-crystalline. Applicants' point is that such polystyrenes of different structure are not considered to be interchangeable by persons of ordinary skill in the art.

Regarding FF 21, the Board cites the specification at page 3, lines 8-16 which describes: "[t]he former publication discloses that specific ranges of the melting point and the crystallization temperature are preferred for example, however, the film has insufficient balance of heat resistance with high shrinkability at the time of heat shrinkage, resistance to spontaneous shrinkage, transparency, rigidity, etc., as a heat shrinkable film. The same applies to the multilayered oriented laminated film disclosed in the latter publication." Contrary to FF 21, this description from the specification is **not** an acknowledgement by Applicants that specific ranges of the melting point and the crystallization temperature were known to be important in forming a heat shrinkable film. Indeed, it is Applicants' discovery that the temperature range is important. As discussed above, by defining the temperature range during orientation with the present components of the present invention, it is possible to obtain a heat shrinkable film having transparency, heat shrinkability at heat resistance outstandingly improved.

The Board finds that Reference Examples 20 and 21 of Matsui et al, in effect, meet the terms of component (A) of the present claims (Decision at 12-13). However, it is only

happenstance that these examples may meet the terms of component (A), since Matsui et al does not distinguish between those block copolymers which have the presently-recited microphase separation structure and those that do not. Why, without the present disclosure as a guide, would one skilled in the art choose a block copolymer according to Reference Examples 20 and 21 of Matsui et al, out of all the other possible examples therein, and combine it with an SPS, and in such a way that a heat shrinkable crystalline film comprising them, obtained by orientation at least in monoaxial direction, and having a heat shrinkage ratio at 80°C for 10 seconds of at least 20%, results?

Claim 9 is separately patentable. Since the applied prior art neither discloses nor suggests employing SPS as the styrene polymer of Matsui et al, the prior art necessarily neither discloses nor suggests such a compound having a crystalline melting point within a range of 160° to 260°C, and a crystalline melting energy of at least one J/g.

Claim 10 is separately patentable. Since the applied prior art neither discloses nor suggests employing SPS as the styrene polymer of Matsui et al, the prior art necessarily neither discloses nor suggests a heat shrinkable film which has a crystallinity of from 3 to 80% and a cold crystallization temperature of from 120 to 170°C derived from the component (B).

Claim 11 is separately patentable. The applied prior art discloses and suggests nothing about internal haze of a heat shrinkable film. It follows that the applied prior art discloses and suggests nothing about an internal haze of at most 30%.

Claim 12 is separately patentable. The applied prior art discloses and suggests nothing about relaxation stresses of a heat shrinkable film. It follows that the applied prior art discloses and suggests nothing about a ratio of the relaxation stresses in the orientation direction of the film and in a direction at right angles therewith, of from 1.2 to 10.

Claim 13 is separately patentable. The limitation --that no holes of 1 mm or larger are confirmed after the film is left at rest on a hot plate of 120°C for 120 seconds so that the film and the hot plate are in contact with each other-- is a property of the heat shrinkable film, not a process limitation. There is no reason to believe that any of the heat shrinkable films of the applied prior art meet this limitation.

Claim 14 is separately patentable. Since the applied prior art neither discloses nor suggests employing SPS as the styrene polymer of Matsui et al, the prior art necessarily neither discloses nor suggests such a polymer forming a domain in the resin composition.

Claim 15 is separately patentable. The Examiner previously found that while Matsui et al does not disclose presently-recited component (D), Matsui et al discloses a (meth)acrylate in a block copolymer for various benefits. The Examiner holds that it would have been obvious to use Matsui et al's "similar" (meth)acrylate.

In reply, it appears that the Examiner meant that presently-recited component (D) is "similar" to Matsui et al's (meth)acrylate, and thus, component (D) would have been obvious. The Examiner is relying on vinyl aromatic hydrocarbon (B3) of Matsui et al. However, neither vinyl aromatic hydrocarbon (B3), nor any other part of Matsui et al, discloses or suggest the (meth)acrylate of presently-recited component (D).

For all the above reasons, it is respectfully requested that the rejection be withdrawn.

Application No. 10/530,480  
Reply to BPAI decision mailed July 2, 2009

All of the presently-pending claims in this application are now believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

Customer Number

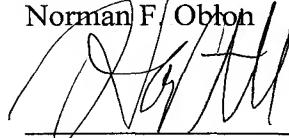
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